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ABSTRACT

This report contains information on institutions that submitted proposals for integrating technology in education to the Annenberg/CPB (Corporation for Public Broadcasting) Project's New Pathways to a Degree program. It is noted that, although the 243 proposals received contained a number of innovative ideas about how to use technologies to improve both the accessibility and the quality of higher education, only seven of them could be funded. The program information is presented under four headings: Recruitment and Orientation; Program and Course Development and Delivery; Support Services; and Faculty Development. Each proposal is described briefly, and a contact person and telephone number are listed. The appendices provide information about the "New Pathways to a Degree" program, the 7 funded projects, and 31 new Pathways Associates. More detailed descriptions are given of the funded projects--at the College of St. Catherine, St. Paul, Minnesota, Indiana University--Purdue University at Indianapolis, Indiana; University of Maine at Augusta; Northern Virginia Community College; Oregon State System of Higher Education (OSSHE), Eugene, Oregon; the Rochester Institute of Technology, New York, and West Virginia University, Morgantown--as well as a brief description the Annenberg/CPB Project and lists of its television and audio course collections and research reports. Brief descriptions of six technology demonstration projects conclude the report. (DB)

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PREFACE

For many institutions of higher education, the future is clear. Information and telecommunication technologies can provide new pathways to a degree for greater numbers of "new majority" students--those who attend college part-time, are older, and have significant family and work responsibilities.

Integrating technologies with programs means rethinking every facet of a student's contact with professors, administrative offices, peers, the library, and the curriculum in imaginative ways. The 243 applicants to the Annenberg/CPB Project's recent New Pathways to a Degree program did just that. Their proposals contained a significant number of innovative ideas, large and small, about how to use technologies to improve both the accessibility and the quality of higher education.

There were far too many good proposals, and good ideas, to be funded. However, the institutions whose ideas are described herein have graciously consented to share them through this handbook, and to list contact people so you can explore these ideas in more depth. The book is divided into four sections: Recruitment and Orientation, Program and Course Development and Delivery, Support Services, and Faculty Development.

In the appendices we have provided information about the New Pathways to a Degree program, the seven funded projects, and the Associates. You will also find information about the Annenberg/CPB Projects, its television and audio course collection, research reports, and technology demonstration projects. Finally, for those of you with a bitnet account, the Project has an on-line news service, NP-NEWS. NP-NEWS links you to a growing library of archived information about ideas and methods. It also provides information on upcoming events, including workshops and computer conferences. To subscribe, send an electronic mail message to LISTERV@UMUC with the one-line message, SUBSCRIBE NP-NEWS (your name). If you have an Internet account, the address is LISTERSERV@UMUC.UMD.EDU and the message is the same.

We hope you enjoy browsing through this handbook. Moreover, we'd be delighted if you would use the tear-off sheet in the back to let us know about other innovative ideas you've had for ways technologies can be used in new pathways to a degree.

Lin J. Foa
Senior Project Officer
The Annenberg/CPB Project

RECRUITMENT AND ORIENTATION

Iowa State University

Develop videocassettes that provide a supportive orientation to distance learning, registration procedures, how the technologies work, support services available, and study tips from successful students. Loan the cassettes freely to prospective students, thus using them as marketing tools.

Contact:
Owen D. Osborne
515/294-4803
FAX 515/294-6223

Dixie College

Reduce tuition and fees by 20 percent for distant learners taking telecommunications-based courses. This will offset extra costs these learners incur for services such as fax, computer line charges, and other supplies needed for courses away from campus. Advertise the fee reduction as a way of encouraging students to enroll.

Contact:
John R. Swan
801/673-4811 or Ext 203
FAX 8011/673-8552

Illinois Valley Community College

Offer a "first course free" policy for students over 27 years of age who have not previously attended the college. Also, make courses available extensively to high school juniors and seniors, allowing them to get a head start on a college degree. These courses can be offered in the area high schools during the school day.

Contact:
Hans A. Andrews
815/224-2720, ext. 406
FAX 815/224-3033

SUNY at Brockport

Develop an audiotaped orientation for adult students and an audiotaped academic planning seminar, consisting of four one-hour tapes, supplemented by a printed manual.

Contact:
Mary Markusen
716/395-5725
FAX 716/395-KEYS

York College

Create "2+2" programs wherein the student spends the first two years getting an AA degree from a local community college, and then continues to attend the same site to receive the next two years of their B.A. degree -- delivered from a university via telecommunications. Thus, the student is not required to switch locations and schedule, and is more likely to continue for the baccalaureate degree.

Contact:
Joseph Dougherty 717/846-7788 ext. 229

Southern Oregon State College

Increase students' chances for success by creating personalized instruction plans for each distant learner, including a counseling package that includes study strategies and potential learning obstacles.

Contact:
Kevin Talbert 503/482-6331
FAX 503/482-6380

University at Bridgeport

Market audio courses that students can listen to while commuting as "Roads Scholar" courses. Create an "audio wrap" for produced courses by recording the local professor on a separate cassette.

Contact:
Mary Ann Ryan 203/576-4800
Michael Grant 203/576-4177

Southwest State University

Prepare students for distance learning by having them participate in an educational planning course that includes discussion of individualized educational planning, learning strategies, and opportunities involving assessment of prior learning.

To familiarize community public librarians with the resource needs of distant learners, program developers and extension librarians should hold orientation and follow-up meetings. Similarly, community education directors, school principals and custodians at an outreach site, and other people with whom students or potential students might come in contact should be well briefed.

Contact:
Carolyn Steel 507/537-6218

PROGRAM AND COURSE DEVELOPMENT AND DELIVERY

Indiana University-Purdue University at Indianapolis

Reduce psychological distance and increase access for "new majority" students by offering courses at well-equipped outreach centers at inner city churches and community centers as well as vocational colleges. Offer students access to basic baccalaureate courses in math, English, history, chemistry, and information resources through cable television, and provide the opportunity to work with peers by using telecommunications technologies (fax, computers, and voice mail). Support students' work with a combination of technical course assistants and mentor/peer tutors.

Contact:
Amy Conrad Warner 317/274-9840
Bitnet:IVTY100@INDYCMS

RADIO BROADCASTS

Use live and recorded radio broadcasts from the campus radio station with a talk show format--including guest experts and listener call-in periods--to deliver courses. Mail visual and text materials to students in advance so they can be referred to during the show.

Contact:
Morgan State University
Earl T. Matthews 301/444-3155
FAX 301/444-3536

Variations:

Integrate the activities of the college television or radio station and the department of academic computing services to provide better course delivery and support services to students.

Contact:
Pensacola Junior College
Elizabeth DuBose 904/484-1796 or
Lori Nolen FAX 904/484-1838

Offer seminars via radio, produced by communications students. This medium is especially useful for students in prison.

Contact:
Martin University
Warren Lewis 812/855-5847
Bitnet:WWLEWIS@IUBACS

LOCAL "WRAPS"

Create local "wraps" for nationally distributed telecourses or audio courses. These inexpensive video or audio additions allow local faculty members to introduce themselves and the course, discuss logistics of assignments and reference materials, or make additional content material available. The wraps can either be delivered via broadcast, cable, fiber, or satellite, or they can be made available on cassettes at libraries, off-campus sites, or by mail.

Contacts:
Utah System of Higher Education
Cecelia H. Foxley 801/538-5247
Don A. Carpenter

Hiram College
Hale Chatfield 216/569-5331
Bitnet:HCHATF@HIRAMB

Western Illinois University
Joyce E. Nielsen 309/298-2172
Bitnet:MSJEN@BOGECNVE

Genesee Community College
Robert G. Knipe 716/343-0055 ext. 425 or 595

Variation:

Create videocassettes for students enrolled in telecourses who are not able to come to the introductory class. The cassettes can familiarize students with their instructor, review course content and requirements, describe procedures for getting course cassettes, provide testing information, and review general information to acquaint students with this type of learning--thus serving as a substitute for that important introductory session.

Contact:
Fox Valley Technical College
Lori Weyers 414/735-5682
Ellen Krueger 414/735-2518

Boston University Metropolitan College

When offering classes by audioconference or audiographic techniques, tape the audio portion and store the computer screens that are generated to create a complete transcript of the class for students who may have had to be absent or who might need to use it for review.

Contact:
Victor Shtern 617/353-2566 or
Internet:VICTOR@BUMETA.BU.EDU

Texas A & I and South Texas College Composition Network

Encourage minority and other adult students to complete required English composition courses with better results by offering classes via computer conferencing. Increase the reach of these courses by working with other institutions in your region to develop a network of computer conferencing classes.

Contact:
David H. Sabrio 512/595-2387
Emil A. Mucchetti 512/595-2640

Troy State University at Dothan

Ask local school systems to make classroom space available for off-campus college courses in exchange for your college making its networked computer equipment available to teachers when it is not being used by the college students. In addition, offer education courses via computer for doubly positive results -- prospective and current teachers will enhance their computer literacy as they are learning the subject.

Contact:
Betty Kennedy — 205/983-6556 ext. 360
FAX 205/983-5059

North Carolina State University

Persuade a local employer who has networked computers to offer courses at their offices from 4:30 to 6:00 for employees . Many assignments and projects can be tied to the employees' work activities as well.

Contact:
Edward W. Erickson — 919/737-3893
Stephen E. Margolis — FAX 919/737-7873

Mt. San Antonio College

Recruit advisory board members from local industries to assist in the planning of new technology-based curricula. Representatives from software companies, telephone companies, television broadcasters and producers, and computer-based training specialists can provide invaluable help, especially if encouraged to benefit from the ensuing educational services.

Contact:
Virginia L. McBride — 714/594-5611 ext. 4308

COURSE MODULES

Speed up progress toward a degree by designing courses in a modular format. This allows students to use a variety of means (computerized and not) to "assess out of" those areas they already know and reach mastery in areas where they need it.

Contact:
Regents College
Kate Gulliver — 518/457-4850
FAX 518/485-7520

Variations:

Organize courses into modular units to enable students to start and stop at convenient times. Modify the modules as appropriate to reflect the cultural diversity of students, and include assignments that require students to interact with their community.

Contact:
Alaska Pacific University
Alicia Martinez 907/564-8322
Bitnet:FNGS@ALASKA

Revise pre-professional courses for distance delivery into modular segments. Then analyze the modules to see which ones might be pulled out and used as separate non-credit continuing education modules for people already in the field, or in related fields.

Contact:
Kansas State University
Roberta Flaherty 913/532-5500
Bitnet:FLATERY@KSUVM

University of Pittsburgh

Use a state of the art courseware authoring program to develop a laboratory-based course in Learning and Motivation. In addition, a computer-driven voice-mail system would be implemented to facilitate communications between distant learners and the course instructor. This course would be entirely self-instructional and the development process would serve as a prototype to guide the development of similar courses by professors who need not be programming experts.

Contact:
Diane Davis 412/624-7210

LABS FOR DISTANT LEARNERS

Offer monthly evening star watch labs at off-site locations for students enrolled in astronomy courses. [Ed. Note: Invite students to bring their families -- involving them in your students' learning helps in lots of ways.] When running telecourses, provide a credit lab on campus as an option for students needing science courses with labs.

Contact:
University of Hawaii - Kauai Community College
Glenn Katahara 808/245-8238
Bitnet:KATAHARA@UHCCVX

Variations:

Develop a laboratory science course in natural resources ecology for distant learners. Using ITV, videocassettes, and interactive computer resources, students can do laboratory exercises in their own locale while studying how natural resources and ecological systems are interrelated.

Contact:
University of Maine System/Community College of Maine
Pamela MacBrayne 207/622-7131
Bitnet:RUSSO@MAINE

Make lab courses offered at a distance more effective by creating short videotaped segments that can be previewed before performing each experiment at home.

Contact:
League for Innovation in the Community Colleges
Don Doucette 714/855-0710
Paul Shumaker 216/987-4787
Applelink:DOUCETTE

Provide lab courses (e.g., chemistry) for distant learners by combining videocassettes of lectures and presentations, dedicated phone lines and scheduled hours for telephone questions, lab simulations using computer software and videodiscs, take-home lab kits for experiments, computer-based testing, and electronic bulletin boards and fax for further interaction and delivery of homework.

Contact:
University of Hawaii - Leeward Community College
Teresita Hartwell 808/455-0269

SUNY at Brockport

Make telecourses more accessible by offering a choice of two syllabi for students to follow -- one requiring 5-7 meetings at on or off campus sites per semester, one requiring telephone, computer, and fax contact with faculty and peers instead of meetings. Laptops and modems are loaned to students who need them.

Contact:
Mary Markusen 716/395-5725
FAX 716/395-KEYS

Western International University

Videotape local business experts to show in on-campus classes or courses for distant learners, thereby enriching the course and increasing the likelihood that busy executives will agree to speak.

Contact:
John Blair 602/488-3145
MCI Mail:JBLAIR

University of Bridgeport

Make self-paced mastery learning available to distant learners by allowing students to use computer-generated individualized tests to demonstrate proficiency in any course module. If tests are developed to be optically scanned and then processed by computer, students can receive immediate feedback on their test performance.

Contact:
Mary Ann Ryan 203/576-4800
Michael Grant 203/576-4177

The University of Maryland University College

Design or adapt courses to enhance critical thinking and discussion opportunities for distance learners using a dual track: computer conferencing for students who have ready access to computers and modems; audioconferencing using a telephone bridge and toll-free number for students not able to participate in computer conferencing.

Contact:
William Wolff 301/985-7722

TEACHING WITH VOICE MAIL

Consider phasing in a technology-based distance delivery program, starting with telephones with voice mail capabilities. Instructors can leave both "public" messages to announce news of concern to the entire class, and use individual voice mail boxes for responses to private questions, assignment feedback, etc. Students can call into this voice mail system from any touch-tone phone with questions, responses, and concerns. Once faculty and students are comfortable with this type of system, the program can begin to include more sophisticated computer and video technologies.

Contact:
Mt. San Antonio College
Virginia L. McBride 714/594-5611 ext. 4308

Variations:

Use a computer-based voice mail system to enable students taking a foreign language telecourse to phone in their oral assignments on a weekly basis and receive oral feedback from their instructor. The system is also used for other courses and administrative purposes.

Contact:
Northern Virginia Community College
Randal A. Lemke 703/323-3379
FAX 703/323-3392
Bitnet:NVLEMKR@VCCSCENT

Provide a voice mail system to offset the difficulties distant learners face in communicating with faculty and other students. The system provides a 24-hour message link via a bulletin board to transmit student questions, provide class assignments or changes in schedules, and offer general information and reinforcement.

Contact:
Suffolk Community College
Lois Ambash 516/451-4042
AT&Tmail=!1LIB

Linfield College

Improve the quality of liberal arts courses delivered at a distance by creating interactive texts via desktop publishing. Taking a Socratic approach, the interactive texts can include lecture notes, as well as the asides, comments, and questions that would be part of a live lecture. Rationales for studying the subject, discussions of the approaches chosen, statements of learning objectives, and anticipated student questions and responses can also be included.

Contact:
Vincil Jacobs
503/472-4121 x281
FAX 503/472-9528

Cerritos Community College District

Enrich student and faculty interaction in writing courses by requiring that students in a given class divide into three small groups. The instructor can meet with each group four times over the semester, with the remainder of the students' work done at a distance, using videocassettes or computers and individualized assignments. In another variation on making more efficient use of faculty resources, two instructors in history and English, for instance, can coordinate their classes using technology to enhance instruction and convenience in an integrated 6-credit liberal arts course, with each class being team-taught for only half the normal on-campus meetings, and students doing the rest of their work at a distance.

Contact:
Jan Dennis-Rounds
13/860-2451 ext. 597
Internet:DENNISROUNDS@CERRITOS.EDU

The Evergreen State College

Develop and implement multi-cultural instructional curricula and materials by having faculty and advisors from all the cultures involved participate in seminars to review available multimedia materials. To make the material even more relevant for specific communities (i.e., Native American students), the subject matter can be organized around contemporary issues. For example, a management studies program could include all the technical skills and disciplinary content usually required, but set within the framework of tribal communities committed to self-determination.

Contact:
Carol Minugh
Barbara Leigh Smith
206/866-6000 ext. 6803 or 6025
FAX 206/866-6823

Northern State University, Cheyenne River Community College, Sisseton Wahpeton Community College, Crow Creek/Lower Brule Community College

Ask experts at tribal community colleges to develop courses in tribal cultures. These can be delivered using two-way audiographic technology to the main campus as part of a Native American Studies program, while they are being offered live to students at the satellite campus on the reservation. In return, faculty at the main campus can deliver courses on topics such as business management or teacher education using the same system.

Contact:
David Fuller 605/622-2568
Lynn Carlsgaard FAX 605/622-2542

Miami-Dade Community College

Facilitate a student study partner system by creating an on-line data base that lists individual students' courses, available study times, and geographic location. When combined with an audio/visual lending library at outreach sites, the system will enable independent study students to arrange group screenings and discussion of course materials.

Contact:
Betsy Hilbert 305/347-2513
FAX 305/347-0941

Pennsylvania State University

Prepare distant learners for engineering courses by offering lower division courses via computer. For example, electrical engineering laboratory courses, often disliked by students because of large, impersonal lecture halls and teaching assistants who have trouble communicating, may be converted to multimedia courses using computer software, lab hardware kits and video.

Contact:
Richard A. Mollo 814/865-0171
Peter K. Forster 814/865-5403

The University of Nevada-Reno

Encourage the development of study groups between students at different sites who are taking the same course by making audioconferencing available after class. Make distant sites more functional by having a paid facilitator for each class, who is responsible for collecting assignments, handling technical problems, assisting with communication with the instructor, setting up study groups, and handling student problems.

Contact:
Mary Stewart 702/784-1465
Larry Gilbert 702/784-6083

California State University-Los Angeles

Encourage minority and handicapped student participation in discussions, as well as the use of extra tutorials by offering courses that depend on computer conferencing for interchange. Studies have found that the self-paced instruction, the ability of students to receive immediate feedback about their errors, and the ability to ask questions in a more anonymous setting have all worked particularly well for students who may have difficulty with in-class discussions or the stigma of visibly using a tutoring service. The same studies have shown that some students also appreciate the equality computer conferencing brings to the competition for the floor.

Contact:
Beryl Bellman 213/343-4262
Bitnet:KGBDLBLB@CALSTATE

Variation:

Offering courses via computer conferencing makes an interactive experience accessible to students in prisons.

Contact:
Springfield College
Joan Bloch 603/444-6858

Castle Junior College
Sister Sheila Garvey 603/893-6111

Oregon State System of Higher Education

Enrich the learning experience for students at off-campus sites using two-way audio or video by occasionally having faculty travel to the outlying sites to broadcast class sessions from each of the sites.

Contact:
Holly Zanville 503/346-5726

University of North Carolina at Charlotte

Address the problem of separate and minimal fee and state appropriation structures for distant learning by integrating off-campus instruction and student services into main campus offerings. If the course originates from the main campus, and is taught by regular faculty, it doesn't matter in terms of head count or "FTE" if the student hears it broadcast by a microphone to the back of a lecture hall, or by a satellite or microwave system to the next town.

Set up an electronic learning center that serves as a laboratory where students and faculty can freely experiment with a variety of technologies, software, videodisc and hypermedia opportunities on a self-paced, hands-on basis.

Contact:
Carolyn Blalock 704/547-4861

University of Central Florida

Improve interactivity during courses taught with audio or video conferencing, coupling a telephone bridge system with a keypad response unit. Such a system allows for instantaneous polling of student answers to questions, with the polled responses displayed on the instructor's viewing monitor as a bar graph. Thus, the instructor can evaluate instantly students' grasp of concepts, as well as store responses for later analysis.

Contact:
Robert Arnold 407/823-2571
Thomas Shostak 407/855-0881

Rochester Institute of Technology

Increase options for the graphic interactivity that is necessary for many applied and/or technical courses by using fax machines, telewriters and/or picture phones for audiographic conferencing. In courses such as mathematics, loaning picture phones

provides a lower-cost way of providing adequate visual interaction to students in their homes without the expense of two-way video installations at specific sites.

Loan students videocassettes through library/media centers or bookstores to increase the use of video as a learner-controlled resource, rather than forcing students to accommodate scheduled broadcasts.

Contact:
Susan M. Rogers 716/475-5166
Bitnet:SMRASV@RITVAX

Memphis State University

Combine viewing of regularly scheduled television news shows such as MacNeil Lehrer or the ABC Evening News with computer conferencing to offer journalism courses to distant learners. Asynchronous discussions can be held over such services as Compuserve, and assignments can be sent via computer or fax.

Contact:
Dan Lattimore 901/678-2401
Bill Brody 901/678-4779
FAX 901/678-3299

BUILDING CONSORTIA FOR COURSE DEVELOPMENT AND DELIVERY

In fields where there are critical shortages of training opportunities such as for medical laboratory technologists, establish a consortium of colleges and universities that will develop joint courses to be delivered at a distance. Students enroll in the B.S. program at their home institution, but can take a significant percentage of their courses through the consortium, knowing they will receive full credit toward their degree.

Contact:
University of North Dakota School of Medicine
A. Wayne Bruce 701/777-2636
Elmer Koneman 303/399-8030 ext. 2633
FAX 701/772-9636

Variations:

Design and deliver modular units that correspond to portions of commonly taught nursing courses to be offered by a consortium of institutions. These credit-bearing modules can then be collaboratively delivered via one-way video, two-way audio to hospitals. Hospitals can equip the class sites with the necessary equipment since it is in their interest to have nurses continue their education without taking significant amounts of time off work. Supplement the pre-professional and clinical courses with self-paced home study courses in the liberal arts.

Contact:
Connecticut State University System
Robert A. Gelbach 203/827-7700
Paul McKenna Bitnet:GELBACH@CTSTATEU

Since nurses have a hard time finishing their degrees while they are working, create a consortium that will offer the senior year courses at any of many statewide sites.

Contact:
University of Louisville
Paulette Adams 502/588-8384
FAX 502/588-5826

Bring together a significant number of institutions to develop statewide or regional degree programs delivered via the technologies. The network can implement systematic course development, faculty training, and support service delivery that can be shared by all the institutions.

Contact:
Wayne State University
David R. Stevenson 313/577-7757
Paul P. Fiedler 313/577-6966
Bitnet:DSTEVEN@WAYNEST1

Develop a consortium made up of two universities, community colleges and technical schools to offer not only lower - level courses and graduate courses, but courses delivered by technology for the upper division baccalaureate level. Jointly offered degree programs in business, education and liberal arts can be constructed with offerings by the two universities in cooperation with the two - year college and technical school.

Contact:
Gwinnett University System Center (Georgia)
Jacqueline Addington 404/995-2195
FAX 404/339-2280

Offer specialized degrees by creating a "2+2" articulation agreement, wherein community colleges offer the introductory courses on their own campuses or by distance delivery. A single offering of the necessary upper-level courses is then delivered by the four-year college or university via telecommunications to students simultaneously at each of the community college sites.

Contact:
Michigan Community College Association
Constance P. Julius 517/372-4350

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Collaboratively design basic courses in English, history and science to be available to any student in a consortium, thereby eliminating the need for each college to design and deliver at a distance the identical introductory courses.

Contact:
Vermont State Colleges
Jeanie Crosby 802/241-2526

Establish broad consortial arrangements that can deliver courses and provide an array of services. The West Virginia Education System, Dept. of Education, Library Commission, County extension offices and the Educational Broadcasting Authority have joined to deliver college courses via satellite to colleges, businesses, libraries and homes. Student support services are also available through a vast human and/or electronic network.

Contact:
West Virginia University
Rudy Filek 304/293-5691
Sue Day-Perroots 1-800-253-2762
FAX 304/293-7163
Bitnet:U4AAC@WVNVM

Slippery Rock University of Pennsylvania

Use a scanner so that faculty can load graphics and information in advance for courses delivered via audiographic conferencing. The materials are ready to use once students and faculty are connected on telephone lines. Also schedule student viewing of videocassettes to prepare students for audioconferencing discussions.

Contact:
Leona Parascenzo 412/794-7348

Carson-Newman College

Revise traditional courses to help students directly benefit their local economies. For example, in a business degree program, students could do marketing studies of what types of businesses would succeed in remote areas, and then in subsequent courses, assist in establishing an actual business.

Contact:
Larry Osborne 615/471-3431
FAX 615/471-3502

Trident Technical College

Enhance instructional television courses by incorporating a variety of other media into the presentation. Local items of interest (architecture, historical sites, activities of economic or artistic significance) can be captured on linear video and then edited into short full-motion and still frame video programs that can be saved on WORM (write once read many) optical discs. These segments can then be inserted into one-way and two-way video presentations, making course materials more locally relevant.

Contact:

Charles McCloy	803/572-6284
James Rehg	803/572-6295
Gary Sattelmeyer	803/572-6178

SUNY Empire State College

Identify the competencies -- the skills, abilities, and aptitudes required for academic success -- and design self-paced modules that use the technologies to enable students to build these competencies. Provide a study guide that helps students move through the collection of competency studies.

Contact:

Carol A. Twigg	518/587-2100

University of New Mexico

Respond to the variety of learning styles students employ by using appropriate instructional design and media such as computer-based simulations, case studies on videocassettes, and group problem-solving audioconferences. Effective instructional design can ensure that all participants are included.

Use audioconferencing to bring guest experts from around the country into discussions with your students. Use audioconferences or computer conferences to conduct roundtable discussions about previously mailed videocassettes, just as traditional classrooms would use the seminar table as a gathering place for a discussion of a text.

Contact:

Jerry Dominguez	505/277-2215
Carlene VanEtten	505/277-5018
	Bitnet:DOMINGUEZ@UNMB

Florida Community College at Jacksonville

Help homebound disabled students to get an education by offering televised courses enhanced by speakerphone access to an audio bridge. In-house tutoring and delivery of library books can be arranged through a structured student volunteer network.

Contact:
Kevin L. Kirk
904/633-8395
FAX 904/633-8435

Southern Oregon State College

In many fields, institutions will face serious faculty shortages in the next decade. Prepare for this by designing courses to be taught over extended networks, where, for example, one well-trained faculty member can effectively teach students at three different sites by using two-way video networks.

Contact:
Kevin Talbert
503/482-6331
FAX 503/482-6380

Sangamon State University

Serve visually impaired students statewide by offering audio courses on sideband radio, enhanced by regularly scheduled "talk radio" sessions on a phone bridge. Choose appropriate courses such as Contemporary American Poetry that lend themselves to auditory learning; bring in guest experts and hold moderated discussions on the phone bridge. By rethinking approaches to papers, assignments, and reports, faculty can enable visually impaired students to participate in rich educational offerings from home.

Contact:
Leroy Jordan
217/786-6614
Bitnet:SSUBIT09@UIUCVMD

New River Community College

Make copies of video programs readily available for loan to students by placing them in area video stores, as students find this a very convenient way to get materials.

Contact:
Thomas W. Wilkinson
703/674-3625

Metropolitan State College

Revise some on-campus courses to include "telectures" for students who can come to campus for some of their classes, but could save time by attending some lectures at a distance via telecommunications and by participating in asynchronous discussions over a computer conferencing system. The combination of on-campus and off-campus study enables greater accessibility by incorporating uses of technologies, and yet increases retention by requiring regular contact with professors and students.

Contact:
Armando R. Gingras 303/556-3283
Internet:GINGRAS@ZENO.MSC.COLORADO.EDU

University of Delaware

Enable students to enroll for computer-based credit-by-examination to place out of specific competency modules and courses. If offered monthly and properly secured, these on-line credit examinations can be an inexpensive way to meet a variety of requirements, particularly for working adults who are returning to pre-professional programs to get degrees.

Contact:
Betty J. Paulanka 302/451-2193
Harvey R. Stone 301/451-2112

University of Akron College of Nursing

Combine the delivery of two-way audio and video classes with computer networking to multiple worksites in order to save cost. Activate the two-way video system one-half hour before each class begins so that students at any site may ask the instructor questions, and during the class as needed for a question and answer period. Cassettes of the video sessions can be made available on interlibrary loan for review. Networked computers can then be used for "off hours" interaction between faculty and students or between students and students.

Contact:
Janne Dunham 216/972-7554
FAX 216/972-6990
Internet:DUNHAM%NURSING@BANYAN.UAKRON.EDU

Barton County Community College

Provide adult distant learners with flexible, packaged courses (FLEX-PACS) that use technologies and that include all the necessary academic materials, suggestions for interaction with faculty and other students, and information about how to take advantage of appropriate support services for the given course.

Contact:
Sharon Sturgis 316/792-2701, ext. 103

East Carolina University

Offer an alternative teacher certification program to prospective rural teachers through a combination of audiographic conferencing and videocassette. The evening classes are delivered to rural high school sites, and combined with monthly face-to-face seminars so that prospective teachers can remain employed while they get their certification.

Contact:
Ann Harrison 919/757-6008

Mount Marty College

Offer an accelerated program in business administration to reduce the time required for part-time students to complete a degree, and reduce the drop-out rate as well. The program concentrates on course outcomes instead of classroom hours. Students get computers, modems and videocassettes on loan from the college so they can complete their work at home.

Contact:
Laura Becvar 605/668-1584

Moravian College

Provide nontraditional students with the opportunity to earn course credits at reduced tuition rates by using Annenberg/CPB Project courses combined with matching DANTES and CLEP tests on an independent study basis.

Contact:
Susan S. Schuehler 215/861-1400
Linda Heindal FAX 215/861-1577

University of New Mexico and Otero Junior College

For courses delivered via one- or two-way video that involve clinical work, videotape short case studies in actual community sites to serve as a basis for classroom discussion.

To improve the effectiveness of one-way video course delivery to remote sites, design a standard set of visuals that introduce the course, the instructor, and the materials, as well as housekeeping items. Design a wide variety of teaching strategies that use the fax and the telephone to enhance panel discussions, interviews, simulations, case presentations, debates, and problem-solving exercises that are shared between sites via the one-way video.

Contact:
Dianna Shomaker 505/277-5725
Virginia Khaliqi 719/384-6899
Bitnet:"NURSING"@UNMB

SUPPORT SERVICES

STUDENT COHORTS

Provide support to students entering a distance learning program by recruiting them in "cohorts." For example, groups of 25 can start a program together, taking roughly the same sequence of courses over a three or four year period. The cohort will serve as an important tool for marketing the program as well as provide students with motivation, an easy framework for forming study groups, and peers to provide back-up if they miss a class because of work or family obligations.

Contacts:

Boise State University

William L. Jensen	208/385-3706
Jerry Beck	208/733-9554
	Fax 208/385-3467

Catonsville Community College

John Sneed	301/455-4179 or
	Bitnet:AAJN@CCC

Warner Pacific College

Edward Whitehead	503/775-4366
	FAX 503/775-8853

Variations:

Team groups of five to ten students for simulated clinical and field training, as well as other group instructional and socialization purposes in pre-professional programs.

Contacts:

Hampton University

Bertha L. Davis	801/727-5674
Larnell Flanagan	804/727-5429

Bring each cohort of students to campus for a week at the beginning of their course of study, so that they can form friendships. Bring them again midway through the program, to explore career opportunities as part of other scheduled activities. Use computer bulletin boards and e-mail networks for student communication at other times.

Contacts:

Houghton College

Charles E. Massey	716/674-6363
	FAX 716/567-9439

CAMPUS LECTURES AND PROGRAMS

Help distant learners feel more a part of the campus by videotaping on-campus program lectures, and broadcasting them over the local networks or making them available on loan from outreach centers.

Contact:
Vermont State Colleges
Jeanie Crosby 802/241-2526

California State University, San Bernardino
Keith R. Johnson 714/880-5976
Bitnet:PAAAAAN@CALSTATE

University of Nevada-Reno

Create a 24-hour toll-free number on the main campus for all distant students to use to inquire about student services, request library materials, etc. This will provide a single point-of-contact and lessen the confusion that off-campus students frequently feel in dealing with multiple on-campus offices.

Contact:
Mary Stewart 702/784-1465
Larry Gilbert 702/784-6083

Rogers State College

Increase accessibility and flexibility by creating a package of telephone options for distant learners, including touchtone enrollment, drop/add, account statements, current schedules, or messages to faculty. In addition, persuade your local video store to offer telecourse cassette check out.

Contact:
Lois Hawkins 918/341-7510 Ext. 375

Illinois Institute of Technology

Extend student services to distant learners by creating videocassettes of presentations on topics such as notetaking, preparing for tests, and using the library. Further enhance library services by creating an on-line guide that provides opportunities for question and answer services, searches, inquiry about books, articles, and references, and remote checking-out of books and materials.

Contact:
Louise Hewitt 312/567-3567
Bitnet:CSHEWITT@IITVAX

Maricopa Community College District

Improve rusty study skills by offering a free audioteleconference seminar series with specialists in the areas of time management, analyzing course packet materials, studying texts and study guides, improving test strategies, and preparing for exams. Students who could benefit from particular sessions are advised to participate, and the seminars are available to traditional students as well as distant learners.

Contact:
Janet Whitaker 602/731-8000
Bitnet:WHITAKER@MARICOPA

Metropolitan State University

Help students understand the process by which learning resources are chosen and used by taping conversations with popular writers, academic researchers, and others who must select such material as part of their work. The tapes can be used in library workshops designed to teach students how to develop and discriminate between a variety of biblographic and media resources.

Contact:
Colleen Coghlan 612/296-0722

California State University-Chico

Encourage the use of electronic learning, messaging, and information retrieval systems on a campus by designing a very simple, consistent interface for all the systems. Once such a system is in place, library materials placed on "electronic reserve" can be used by distant learners as readily as on-campus students use books and periodical references. Similarly, support services, catalogs and schedules for registration services, and career planning services can all be easily accessed.

Contact:
William Post
916/895-5862
FAX 916/898-4443
edu.BILLPOST@MAM:LGW.CSUCHICO

Nashville State Technical Institute

When delivering courses to worksites, or when significant numbers of students from a single site enroll, work with managers and students to develop on-site peer support and study groups, as well as permission to use company computers at designated times for electronically supported courses and student services.

Contact:
Ellen J. Weed
615/353-3325
FAX 313/353-3499

University System of New Hampshire, School for Lifelong Learning

Design a course for students to develop self-directed learning skills. The course can provide adult students with the intellectual tools and strategies for independent learning, not only in the college classroom and in individualized programs, but also in their personal and professional lives. Include an introduction to academic disciplines, the function of research in expanding knowledge, the role of expert practitioners, the use of technology in learning, and the examination of personal abilities in relation to learning. Through group projects, individual projects, reading, and structured interviews, learners can discover the special resources available to them and effective ways to use them.

Contact:
Frances A. Mahoney
603/862-1692

Howard Community College

Accommodate students who cannot enroll in telecourses or other distance learning courses on a normal semester basis by establishing procedures to allow rolling admissions and completion dates. Individual contracts can be used to set deadlines, videocassettes can be mailed, and faculty can be trained to support this individualized, flexible use of technologically-delivered courses.

Contact:
Joan Hawkins 301/992-4823

Maricopa Community College District

Increase flexibility by offering telecourses on an open-entry, open-exit system wherein students may start and finish their courses anytime within a 20 week period; make telecourse videocassetes available via check-out. Make VCRs and modems for computer conferencing available through a loan system for those students who have no other access.

Contact:
Janet Whitaker 602/731-8000
Bitnet:WHITAKER@MARICOPA

California State University, San Bernardino

Include a taped walk-through of the library that can show students where resources are and how to use them. This can also be used by libraries for traditional student orientation.

Contact:
Keith R. Johnson 714/880-5976
Bitnet:PAAAAAN@CALSTATE

Western Illinois University

Help students to use electronic mail by establishing a toll-free number with 24-hour access to the system; a second toll-free number can allow distant learners to order and charge textbooks. Use e-mail and a third toll-free number hooked to an answering machine for foreign language classes. Students send written assignments and receive prompt feedback via e-mail; they respond to oral quizzes on the answering machine.

Contact:
Joyce E. Nielsen 309/298-2172
Bitnet:MSJEN@BOGECNVE

Lewis-Clark State College

Identify strengths and weaknesses of a new program by asking students and faculty involved to keep journals. The journals could cover such topics as whether students and faculty can communicate easily, whether students have ready access to support services, and what the barriers are to earning a degree.

Contact:
Mary Emery 208/799-2460

Iowa State University

At the beginning of each semester, advise students in multi-site courses simultaneously by having a live conference transmitted via satellite uplink. The broadcast can include videocassettes of processes and procedures and live, interactive discussions with faculty, staff, and administrators. Students can use toll-free lines to ask questions, and the taped teleconference can be broadcast several times to accommodate differing student schedules.

Contact:
Mike Simonson 515/294-0227

Mississippi University for Women

Support students who are taking courses at a distance by recruiting local mentors who are area public school teachers, business leaders, and alumni who live in the area. These mentors can serve as models for students, be contracts for internships and employment, and also can be recruited to serve on advisory boards to assess the success and future directions of the outreach programs.

Contact:
David Nickels 601/329-7535
FAX 601/329-7297

American University

Increase adult students' ability to complete credit for prior learning by loaning them a computer and modem through which they can complete their portfolio assignments, access student services, and communicate with their instructors and peers. Group assignments and interaction, and peer review of writing are also possible, thus providing a "community of scholars" for the adult student returning to school.

Contact:
Rodney W. Dennis 202/885-3960

Genesee Community College

Give students access to their personal data by offering a host of read-only services on-line. Students can obtain updated financial aid information, receive bursar notices, check their schedules, get an unofficial transcript, and check their academic progress through a degree audit. This system allows students to send or receive voice mail or e-mail messages for faculty/staff in appropriate offices, or engage in group e-mail conferences at a convenient time and place.

Contact:
Robert G. Knipe 716/343-0055 ext. 425 or 595

Goddard College

Create a resource center that can be accessed electronically. Library services, writing center services, an internship database, placement office services, and faculty access can all be coordinated on-line for students who are engaged in independent study some distance from campus.

Contact:
Paul E. Garstki 802/454-8311
FAX 802/454-8017

University of New Mexico and Otero Junior College

Help distant students become proficient in using on-line library resources by having the on-line librarian travel around the state occasionally to offer in-person workshops and assistance.

Contact:
Dianna Shomaker 505/277-5725
Virginia Khaliqi 719/384-6899
Bitnet:"NURSING" @UNMB

University of Wisconsin-Milwaukee

Support minority students and others in urban centers who are returning to school by establishing student support centers in local neighborhoods, where students may receive advising, gain access to resources and the use of technologies, and interact with "teaching partners" -- mentors who are located at the centers to assist students with their studies.

Contact:
Barbara Sparks 414/229-6348
FAX 414/229-6930

Wilmington College

Integrate films and videocassettes of performances, plays, and documentaries into courses offered to student prison inmates, thereby exposing them to an otherwise inaccessible world of cultural offerings and diversity.

Contact:
Norman E. Smith 513/382-6661, ext. 391

County College of Morris

Request that telecourse producers allow the sound tracks to be recorded on audiocassette, so that colleges can make them available to students for review while commuting.

Establish a testing center, perhaps in conjunction with other service facilities, that is open a broad range of hours, so distant learners and other adult students can take proctored exams at their convenience.

Contact:
Gwen Dungy 201/328-5400
Peter Utz FAX 201/328-1282

Butler County Community College (Kansas)

Use ITFS systems to hold scheduled faculty office hours. The cost is low and faculty can provide more personalized service with visual reinforcement.

Contact:
Tom Erwin 316/32-5083 or
FAX 316/321-5122

Vermont State Colleges

Provide extended library hours to distant learners by using a rotating 800 number plus call forwarding to create a service network of libraries that share an on-line catalog in a state or region. The on-call library should be able to provide the same reference and interlibrary mail/loan services as the other libraries in the system.

Contact:
Jeanie Crosby 802/241-2526

FACULTY DEVELOPMENT

ASSISTING FACULTY IN COURSE REDESIGN

Offer faculty significant opportunities to redesign courses to make the best use of new technologies. Include time for faculty development workshops to familiarize them with the technologies, for thorough review of existing non-print course materials that are nationally available, and for working with consultants or colleagues to rethink their course objectives and strategies. Analyze college faculty reimbursement policies to find compensation for this instructional design time.

For effective faculty development, use the same technologies and curricular methods to teach the faculty that they will use to teach the distant learners. Thus, faculty can be trained at a variety of sites simultaneously and will be comfortable using the technologies to design courses and teach students.

Contact:

University of Maine System/Maine Community Colleges
Pamela MacBrayne — 207/622-7131
Bitnet:RUSSO@MAINE

Vermont State Colleges
Jeanie Crosby — 802/241-2526

Rochester Institute of Technology
Susan M. Rogers — 716/475-5166
Bitnet:SMRASV@RITVAX

Pensacola Junior College

Encourage and support faculty volunteers who provide academic advising via computer conferencing or e-mail by providing them with a free workstation for use in their offices or homes.

Contact:
Elizabeth DuBose — 904/484-1796 or
Lori Nolen — FAX 904/484-1838

Utah System of Higher Education

Propose that the board of Regents (or similar governing body) establish a course development fund that can provide telecommunications grants to faculty members to develop technology-delivered courses in needed areas. [Ed. Note: This could be considered a cost-effective way to deal with increasing student populations, rather than trying to persuade legislatures to build buildings and hire more faculty.]

Attract outstanding teachers to offer classes via telecommunications by recognizing their work in tenure evaluation, treating the production of a telecourse as a publication, and adjusting teaching loads in recognition of the extra effort required to develop and deliver courses of high quality.

Contact:
Cecelia H. Foxley 801/538-5247
Don A. Carpenter

The College of Saint Catherine

Teach faculty how to use Hypercard and Toolbook for their own purposes. Encourage them to put their syllabi, lecture notes, assignments, and tests on these software packages. When students need to use a particular part of the course, it can be easily accessed via floppy disk or over a network. Class discussions can then more easily be held via computer conference or audioconference, and on-line library access can provide research opportunities.

To take advantage of the variety of resources available, encourage faculty to develop "mediographies" rather than bibliographies for their courses.

Contact:
Sandra Running 612/690-6542
FAX 612/690-6549
Internet:SJRUNNING@OA.STKATE.EDU

North Harris County College and Our Lady of the Lake University of San Antonio

Consider the infrastructure changes needed to make offering courses via telecommunications successful--what full course load means; instructor compensation for distance teaching; how will faculty roles change; professional development and non-monetary reward structures needed for faculty teaching at a distance; allocation in the college budget for distance learning; and how costs are to be accounted for.

Contact:
Kenne G. Turner 713/591-3522
Deborah Mottsman 713/591-3531

University of Hawaii - Leeward Community College

Build a corps of expert distance teaching faculty by cycling regular faculty (three at a time) through a program that involves training in one term and teaching in the next. Each semester three new faculty begin the process, benefitting from the help of previously-trained faculty.

Contact:
Teresita Hartwell 808/455-0269

Nebraska Educational Television Council for Higher Education (NETCHE)

Provide more coherent faculty and staff development among a variety of institutions, using two-way satellite teleconferencing for statewide training conferences on the distance learning process. Such topics as helping the nontraditional learner select appropriate courses, fostering interaction with the distance learner, evaluating existing distance learning courses, and planning and delivering a distance learning course can be offered.

Contact:
Lee Rockwell 402/472-3611

College of Du Page

Help faculty develop sensitivity to nontraditional learners and their needs by creating a video (or audiocassette) presentation of the typical characteristics and experiences of the distant learner.

Contact:
Patricia Ann Keir 708/858-2800 X2618
Bitnet:WOLSKI@CODVMI

Metropolitan Community College and Peru State College

When instituting a "2+2" articulation agreement that includes delivering courses at a distance via technologies, involve both sets of faculty in simultaneous programs. Sharing courses in instructional design, how to teach with technologies, and teleconferences about using telecourses can make the two faculty groups more cohesive.

Contact:
Andrea Binkley 402/289-1214
FAX 402/289-1276

University of California-Davis

Improve faculty and staff computer proficiency by offering brown bag mini-courses at lunchtime. "MACLunches" and "PCSnacks" can include a short lecture or demonstration and a question-and-answer period on an informal basis.

Contact:
Lawrence B. Coleman 916/7526068
FAX 916/752-3107

APPENDICES

NEW PATHWAYS TO A DEGREE

The purpose of New Pathways is to help colleges use technologies to develop academic programs that are accessible to the New Majority of learners — people with jobs, home responsibilities, and schedules or locations that make full-time study at the campus of their choice difficult or impossible. At the same time, colleges can use these technologies to tap richer, and more diverse academic resources — e.g., remote library collections, distant experts, databases, video material, powerful software.

With New Pathways, the Annenberg/CPB Project is testing the proposition that colleges can offer a new kind of academic program, made possible by technologies, that is accessible, supportive, academically rich, and rigorous. Over 10% of all colleges in the US were involved in 243 proposals to the funding competition in fall 1990, and reviewers were uniformly impressed with how far virtually all of the applicants had already come in putting modern information technologies to work. The technologies are the same as those now being exploited by the modern office: computing, video, fax machines, audio conferencing, and the like.

At the heart of New Pathways are seven projects that are receiving a total of $1.5 million to develop academic programs that offer much or all of what a student needs to work toward the baccalaureate degree:

The College of St. Catherine, St. Paul, MN
Indiana University - Purdue University at Indianapolis
Community College of Maine
Northern Virginia Community College
Oregon State System of Higher Education
Rochester Institute of Technology
West Virginia University/Project Breakthrough

The projects in Maine, Oregon and West Virginia involve several colleges with programs available across their states.

New Pathways begins but does not end with those projects. The Annenberg/CPB Project is also investing $330,000 in a range of related activities, including:

a) evaluating what can be learned from the work of these seven projects;
b) inviting an additional 32 of the best applicants to become New Pathways Associates, and join the funded seven in a series of meetings and activities over the next three years;
c) developing and distributing information about what other colleges are doing;
d) offering workshops in 1991 for colleges interested in developing such programs;
e) sponsoring conversations on the Internet for those involved in similar programs.

Following are descriptions of the projects at each of the funded New Pathways Colleges, and the projects being undertaken by the New Pathways Associates.

COLLEGE OF ST. CATHERINE, ST. PAUL, MN

EDUCATIONAL CHALLENGE

The College of St. Catherine operates a very successful Weekend College program for women in the seven-county metropolitan area of Minneapolis/St. Paul. Enrollment has increased almost 300% in its 10-year history from 128 in the fall of 1979 to over 600 in 1990. The College's Weekend Program is already recognized as an excellent model for meeting the needs of adult students who are unable to accommodate a traditional weekday college format. However, there continue to be obstacles preventing many students who want a degree from earning one.

Three problems of national concern addressed by this program are:

- o student retention -- as many as one third of students are forced to "stop out" for a term because of personal or work-related circumstances. Many of these students do not return to school;

- o educational options in suburban and rural areas -- women living outside the Twin Cities area do not have access to the same range of opportunities for higher education as women in the Twin Cities area; and

- o barriers to technologically oriented careers -- it is generally recognized that women experience many barriers to technologically oriented careers.

PROGRAM

The College of St. Catherine will use available computer, audio/visual and communications technology to make the majority of a baccalaureate degree programs accessible off-campus. For students who do not have access to the necessary technology at their home or workplace, the College will arrange for convenient access through a nearby library, campus, or other facility.

SERVING STUDENTS

Through Courses

Two groups of courses will be adapted to computer and communications delivery methods: a) a group of 10 courses that meet 10 of 14 general distribution requirements for a baccalaureate degree, and b) seven of 10 courses required for a major in information management.

Students can take these courses off-campus and on-campus as their circumstances require, thus preventing the need for many students to "stop-out" and lessening the associated risk of dropping out. Of special interest for the women outside the urban area, and a key element of the College's response to the problem of barriers for women

to technologically oriented careers, 70% of the degree with a major in information management can be completed off-campus.

Through Technologies

The liberal arts core courses and the information management major courses selected for electronic delivery will use a mix of technologies. Lectures, graphs and slides, exercises/assignments, handouts, overheads, chalkboard illustrations, and the text of in-class explanations will be put into electronic form so that they can be sent over telephone lines or carried on computer diskettes. One-to-one communications will be provided by electronic mail, and group discussions by computer bulletin board and computer conferencing.

Through Course Design

While some faculty will design and create computer-based course materials themselves with easy-to-use hypertext software, the College intends through the New Pathways funding to make professional programmers and student assistants available to faculty for help in creating new materials. Faculty development workshops will be offered to assist faculty with applications of computer and communications technologies to courses they teach.

Through Enhanced Learning Experiences

The student who takes an electronically-mediated course will have the same textbook, outside reading assignments and projects as students taking the course on campus. Lectures and exercises, however, will be made available on-line or on a computer diskette. Lecture materials may also be made available on videocassette or audio-cassette at the discretion of the instructor. Completed exercises would be sent back to the instructor as a computer file, and the student would receive feedback from the instructor through electronic mail, or through the conferencing system or bulletin board when group work is involved. Students will "talk" with each other as well as the instructor via computer-mediated communications. Students will still come to campus several times a year to work with faculty and to take advantage of campus-based academic and student support services.

Students will be able to request library materials on-line and pick them up at local public libraries. The College has a cooperative arrangement with the Dialog Information Services Company which makes available an Information Lab with computers, modems and telephone lines for accessing on-line databases of bibliographic information from many fields of study.

Contact: Sandra Running, Project Director
612/690-6542

INDIANA UNIVERSITY-PURDUE UNIVERSITY AT INDIANAPOLIS, IN

EDUCATIONAL CHALLENGE

Indiana University-Purdue University at Indianapolis (IUPUI), is a large, highly regarded urban university. Established in 1969, IUPUI began by concentrating on graduate and professional education, but over the past five years the University has emphasized undergraduate education with special emphasis on individuals who have found it difficult or impossible to pursue the baccalaureate degree. While the University has initiated and expanded a number of programs designed to increase access for all students, these programs have not proven attractive to the urban minority population in the heart of Indianapolis. The problems faced by these potential students include cultural and psychological obstacles, compounded by constraints of time, transportation and income. The challenge is to create a learning environment that is psychologically supportive, intellectually invigorating and physically accessible for the urban minority population in Indianapolis.

PROGRAM

IUPUI's approach involves three key ideas:

- putting classes and meetings at community sites easy for students to reach and that provide support to students;
- building on the pioneering work of Uri Treisman at Berkeley, who has been very successful in helping minority students succeed in difficult subjects by working with them to form supportive study groups that use peer tutoring as well as active involvement of the faculty; and
- using technologies -- including television and computers -- to bring the courses to learners and enable students and faculty to work closely together even when they are physically separated.

SERVING STUDENTS

Through Community Sites

IUPUI is reaching out to learners through community-based organizations, each of which serves a somewhat different population. These sites, which will be linked electronically to both the campus and to each other, include: Christamore House, a community center serving low-income minorities; the Hispanic Holistic Education Center; the Indianapolis Churches for Educational Excellence (ICEE), a group of seven inner-city African-American churches; and Indiana Vocational Technical College.

By Bringing the "Lecture Hall" to the Students

Courses will be broadcast to the centers, and out to learners' homes, from IUPUI's state-of-the-art lecture hall. Courses will be videotaped as well, and copies of the tapes will be available for review and check-out for home viewing at each community center. In the lecture hall, a science demonstration table and microscope have been equipped with video cameras so that all experiments can be captured on video. A sophisticated sound system transcribes materials from a variety of formats into an appropriate medium both for projection into the room and for transmission. Apple, IBM, and NeXT computer systems can be used together or in isolation to augment the class discussions with projections of text, graphics, and simulations.

Through an Enhanced Learning Experience

Each learning center will have computers connected by a network to the IUPUI campus and library, a television set with cable access and a videocassette player, a fax machine, a telephone with voice mail capability, and a library of information resources. Textbooks and required readings will be on reserve in the learning centers as will cassette copies of each lecture. Comfortable study areas will be provided.

Students in a given course will join collaborative study groups to work with carefully selected peer tutors. On a normal class day students and their peer tutors will watch the video broadcast of the day's lecture. Students will be encouraged to come to their learning centers to watch, but those who need to remain at home can either receive the broadcast via their cable system, or watch it on videotape.

Learners may use the technologies available at their centers to communicate with members of their study group, faculty, course assistants, mentor/peer tutors, and academic advisors. For example, using electronic mail, students can share drafts of course assignments, comment on other students' work, raise questions for group consideration, and/or ask faculty assistants or other students for information or instructions. Computer-based educational modules will be developed from lecture materials and related supplemental materials, so that individuals and groups who want further explanation, review and practice can focus on specific aspects of the week's course work. When students require additional assistance, peer tutors will act as liaisons between the remote students and resource people at IUPUI's Writing Center and University Access Center.

Contact: Amy Conrad Warner, Program Director
317/274-9840

UNIVERSITY OF MAINE AT AUGUSTA[1]

EDUCATIONAL CHALLENGE

College campuses in Maine are too far from most of the state's learners. To combat this problem, the state invested in the development of a microwave and fiber optic network for video, audio and data. All public institutions in the state are linked with a growing number of community sites. The resulting Community College of Maine Telecommunication System offered its first courses in fall 1989. Faculty are drawn from any of the University of Maine system campuses, since they all can originate programming on the network. During spring 1990, 2,852 students enrolled in ITV courses. Students can see and hear the faculty member delivering a live lecture via one-way video, and can ask questions via telephone during the lecture.

Maine has encountered three challenges that will be faced by any rural state using this general strategy:

- reaching beyond the lecture to support seminars, library research, laboratories, and student services;
- filling out the curriculum so that it offers a coherent pathway to a degree; and
- educating faculty so that they can adapt their courses to the characteristics of the students and technology-based system.

PROGRAM

Maine will upgrade its curriculum, student support services, and faculty/staff training so that a model Associate of Arts degree can be offered. Such a degree would be accepted for transfer to appropriate four-year programs at all the public universities in the state. The Community College will:

- offer courses to satisfy requirements for the AA in liberal arts, including courses requiring more interactive styles of teaching and learning, such as laboratory science requirements, composition, communications, and advanced mathematics;
- add computer conferencing, electronic mail, and fax machines to support interactive styles of teaching and learning;
- extend more resources to the off-campus sites, including laboratory equipment, enhanced library services, and a variety of electronic equipment such as videodisc players; and

- develop an innovative strategy for showing faculty, student support staff, and technical staff how to teach adults and disabled students through new uses of technologies.

SERVING STUDENTS

Students will take advantage of more interactive forms of delivery through four new courses and revisions of 16 existing courses.

From the Student's Point of View

A student taking statistics, for example, would go to the nearest off-campus site in order to participate by viewing the live instruction and using the telephone or fax machine to ask the faculty member questions during the lecture. Tapes of the previous sessions or of relevant programs from AGAINST ALL ODDS, the Annenberg/CPB Project video used with the course, could also be studied. When doing homework, the student could work on more interesting and complex problems than is usually the case, because Maine will offer computers and statistics software at its sites. Software for tutoring students through the toughest issues in statistics would also be available. The student would do most assignments at home or work. Computer and fax would be used to get homework assignments, send completed homework, and take part in discussions via a computer conferencing system.

Training of Faculty and Staff

Development of the program will be supported by a new Center for Distance Education. Its mission: to help faculty, student support staff and technical staff learn how to use technologies to teach adults and disabled students who come to system sites.

During the academic year, the Center will offer a series of workshops to introduce faculty and staff to the technologies they need. During the summer, the Center will run a week-long institute for faculty and staff on adult learning, disabled students, and the use of technologies in developing courses that are accessible to these students.

The Center will also offer such programs to other colleges around the country; the money from such programs will help the Center sustain itself as part of the University.

Contact: Pamela MacBrayne, Project Director
207/662-7131

[1] On behalf of the Community College of Maine.

EDUCATIONAL CHALLENGE

Northern Virginia Community College is one of the two largest multi-campus community colleges in the country, and has provided distance learning options to over 100,000 students since 1975. NVCC has an impressive track record in using technologies to open new pathways for students to take courses. The NVCC Extended Learning Institute (ELI) has 75 distance education courses using mostly one-way, single-media delivery methods.

NVCC's challenges consist of addressing problems students have in attempting to earn degrees through distance learning:

- an inability to take all courses required for a degree by distance learning methods;
- limited opportunities for communication and interaction with fellow students, teachers, counselors and advisors; and
- lack of coordination and planning between distance education administrators and campus-oriented academic departments, resulting in schedule conflicts and limited access to campus-based services and resources.

PROGRAM

Through the Extended Learning Institute, NVCC will:

- develop new courses so students can complete all requirements for the Associate degree through distance learning;
- take advantage of multiple technologies to improve access to information and to improve communication and interaction; and
- increase access to resources and campus-oriented services for off-campus learners by improving understanding and cooperation between distance learning administration and campus-oriented academic units.

SERVING STUDENTS

Through Complete Degree Programs

A total of 18 new or redesigned courses will make it possible for students to achieve a complete Associate degree in general studies or business administration. In all cases, better integration of computer, audio, video and print technologies will be employed to

improve access to academic and support services, increase access to learning resources, and increase communication among students and with faculty.

These degrees are intended for students who plan to continue toward a baccalaureate degree at a four-year college or university, and thus will directly meet the central objective of the New Pathways initiative by creating access that was not previously possible to a baccalaureate degree.

Through Information and Communication

ELI will introduce technologies making it easier for students to communicate with each other and their instructor. For example, FRENCH IN ACTION will be cablecast on NVCC's cable channel; and the voice mail system will be used for students to phone in their oral assignments and receive critical oral feedback from the instructor. The compressed video network, which connects NVCC's five main campuses, will also be employed to support live dialogue for French instruction.

The voice mail system will serve information and communication purposes for student services as well as instruction. Both course and student services information will be made available around the clock on the voice mail system. Students will be able to communicate with student services personnel just as they will with faculty by leaving voice mail messages on the system.

To improve the off-campus student's access to counseling information, five 30-minute counseling videos covering academic counseling, vocational counseling, college services and college life, and how to be a successful distant learner, will be produced, shown on cable and be made available for check-out at learning resource centers.

Through Coordination and Planning

ELI will sponsor seminars for campus-oriented administrators and faculty that will provide them with a better understanding of distance learning, and workshops in which distance learning administrators and key campus staff can collaborate in developing new policies and procedures that will improve the collegial experience for distance learners.

Contact: Randal A. Lemke, Project Director
703/323-3379

OREGON STATE SYSTEM OF HIGHER EDUCATION (OSSHE)[1], EUGENE, OR

EDUCATIONAL CHALLENGE

Many states are beginning to recognize that using technologies intelligently for education means putting in place a "hardware highway" that blankets the entire state and serves all levels of education -thus helping educators share resources and provide opportunities to all citizens.

The creation of the Oregon Ed-Net has made the state a leader in this area. Ed-Net involves three different ways of distributing information and permitting communication. Network 1 is a satellite-transmitted broadcast-quality channel that will reach over 700 locations throughout the state. Network 2 supports 30 channels of two-way compressed video and two-way audio communications transmitted by a mix of satellite and fiber optic cable. Network 2 will initially have transmitters and receivers at 39 locations around the state. Network 3 will provide audio and data communications from remote sites to library resources through a combination of computers and telephone lines.

PROGRAM

The OSSHE program will:

- offer three academic programs using its telecommunications highway

  B.S. in Agricultural Business Management
  B.A./B.S. in Liberal Studies
  B.S. in Nursing

- modify the courses in each of those programs so that they can be delivered over Ed Net; [2]

- plan and carry out a model for comprehensive student support services.

SERVING STUDENTS

Faculty will use Ed-Net's Network 2 to deliver their courses to students. Network 2 makes it possible for the faculty member and the students all to see and hear each other as if they were in the same classroom. In a typical class session, the instructor will deliver the course from either the home institution or any of the other Network 2 sites across the state. A portion of the session will be given over to lecture incorporating preproduced video and graphics. The liberal studies program will make some use of video materials from the Annenberg/CPB Project in particular. Because all Network 2 sites are send and receive sites, this portion of a class may also include a guest lecturer from any site.

After the day's lecture, the Network's two-way capabilities will allow faculty and guests to open the class--literally--into a seminar involving students at all participating sites. This period of question and answer will let learners discuss the points in the lecture, and see and explore the ideas of their extended classmates.

Each course session will be recorded and videocassette copies will be made available at each site. Students with VCRs will be able to check out these tapes and review lectures and seminar sessions at home and at their convenience. Students without access to a VCR will be able to come to the nearest site for review.

In some cases, particularly in the nursing and agribusiness programs, Network 1 (the one-way broadcast-quality network) may be used to retransmit course sessions to other groups at many of the hundreds of receive-only Network 1 sites in rural and isolated parts of the state.

OSSHE will provide computing facilities at each two-way video site, giving students access to Ed-Net's data communications network (Network 3). Following the class, and at any time between classes, students will be able to interact with each other, and to direct further questions to faculty using electronic mail over Network 3. Students will also be able to use Network 3 to search libraries and to check out books which will then be delivered to their classroom site.

Each two-way video site will have its own facilitator who will be able to help students with registration, contacting advisors, and use of the Ed-Net system.

Contact: Holly Zanville, Project Director
503/346-5726

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[1] Eastern Oregon State College, Western Oregon State College, Southern Oregon State College, University of Oregon, Oregon State University, Portland State University, Oregon Insititue of Technology, Oregon State University, and Oregon Health Sciences University.

[2] Exceptions are clinical courses for nursing, which will be offered in selected hospitals across the state, and practica in agribusiness.

ROCHESTER INSTITUTE OF TECHNOLOGY, NY

EDUCATIONAL CHALLENGE

The Rochester Institute of Technology (RIT) has employed a variety of strategies for reaching working adults. During the last decade RIT has mounted a successful telecourse program, but one facing familiar limits: not enough upper division courses are available, and not enough capability exists to support interactive teaching. So RIT has tried offering courses using various combinations of low-cost video and interactive technologies. The results have been encouraging, and they are now ready for the next step: developing a coherent pathway to a degree.

PROGRAM

Rochester will develop 40 courses from which students could structure a degree program in applied arts and sciences. Their strategy has four key elements:

- offer faculty a choice of relatively affordable, flexible technologies;
- offer students a choice of technologies that can be accessed at home or work and/or that are inexpensive enough that the college can afford to loan the student needed hardware;
- develop equipped sites at several locations over 100 miles from RIT so that more students can take part in discussions where they have to point or draw as they discuss a "blackboard" drawing or slide; and
- modify the regular courses and services to make them more accessible.

SERVING STUDENTS

Through A Choice of Majors

RIT will redesign 40 courses that are applicable to a major in applied arts and sciences. The major's core courses will include offerings in math/science, humanities, as well as a senior seminar. Each student will also take courses from at least two of the program's areas of concentration. These areas include telecommunications, applied computing, management, and health systems administration.

Through Course Design

Courses will be organized around a core of videotaped presentations. Where possible, existing telecourses will be used. For most upper division courses, the RIT faculty member will work with staff to plan and tape the class presentations. Videos will be made available through the local PBS affiliate, local cable, a remote site or bookstore rental.

RIT will offer its faculty and staff a choice of technologies, including audio conferencing, audiographic conferencing, and picture phones. Because student schedules vary, RIT will also provide electronic mail, fax, and computer conferencing as media for conversation and exchange. These technologies have an additional benefit: they open the class to the hearing-impaired. (RIT is the home of the National Technical Institute for the Deaf.)

To help students acquire the intellectual skills that faculty are describing in class, RIT will offer a range of tools for research. At the center are a suite of on-line library services. In some courses, distant students can connect their home computers via phone line to laboratory equipment on campus, using the computers to gather and analyze data from real experiments. Videotapes will be used to give students vicarious tours of industrial sites where laboratory equipment is in use.

Through Student Services.

On-line access to a wide range of student services such as course registration, financial aid, and special support services for the disabled will be developed and/or enhanced.

Through Equipment Access

The computer and the VCR are the primary instruments in the RIT ensemble. Access to such equipment has proven quite manageable. As early as 1988, 75% of RIT's telecourse students already had computer access. RIT has developed, and will enlarge, its program for lending and leasing equipment, and will make equipment available at remote sites.

Through Remote Sites

RIT aims to support learning in the home and at work, but certain types of equipment can more easily be provided at equipped sites or on campus. Sites are established at Jamestown Community College and Tompkins-Cortland Community College. Each is over 100 miles from RIT, making it possible to serve a variety of distant learners. A third site will be established at Corning Community College. Other sites under consideration include Onondaga Community College, several public schools, and several corporations in the region. All sites will be equipped with at least one computer, a speakerphone, audiographic conferencing equipment, VCR, and a fax machine.

Contact: Susan M. Rogers, Project Director
716/475-5166

WEST VIRGINIA UNIVERSITY, MORGANTOWN, WV

EDUCATIONAL CHALLENGE

West Virginia has the lowest percentage in the country of residents who have attended college. Although a recent survey showed that more than 40 % of West Virginians want a college education, they feel that pursuit of it conflicts with full-time jobs and family life. In addition, attending on-campus classes means spending time and money on traveling over rugged West Virginia terrain.

West Virginia University's (WVU) challenge is to provide access to higher education to all of the state's adult population. It believes that to do this it must first mobilize, statewide, all key institutions concerned with education and telecommunications. WVU will set a system in place which will provide the personal support West Virginia adults will need as they work toward a degree through distance education.

PROGRAM

West Virginia University has performed a careful and extensive study of adult West Virginians, of their educational wants and needs and the obstacles they face trying to fulfill them. Based on this study, West Virginia University in cooperation with the West Virginia Higher Education System, the West Virginia Educational Broadcasting Authority, the West Virginia Library Commission, and SATNET (the statewide satellite delivery network), has developed a program to increase access to higher education -- to the higher education wanted and needed -- for these adults. Called Project Breakthrough, it would:

- develop telecourses that mix newly produced video and existing highly produced segments and that satisfy the requirements for college degrees;
- deliver, via satellite, four different telecourses per semester to adult learners in their homes and at the 16 public higher education institutions, nearby public libraries and public schools, and places of business; and
- support adult learners taking these telecourses with a technology-enhanced, human network of dedicated employees of the state's 16 public higher education institutions, 160 public libraries and 55 county extension offices.

SERVING STUDENTS

<u>Through Course Selection</u>

A significant number of adults want to pursue degrees in general studies and business management. Therefore, the courses selected will allow West Virginians to fulfill all

undergraduate degree requirements in these two areas, as well as pursue one- or two-year degrees. Working closely with state public television personnel, Project Breakthrough staff will schedule four telecourses per semester, to be transmitted over SATNET, that will provide the degree path.

Through Course Design

Project Breakthrough courses will be designed to combine approximately 30 minutes of preproduced video -- in many cases Annenberg/CPB telecourse video -- with 60 minutes of live instruction. They will be taught by faculty from the 16 public higher education institutions in the state. Each campus has an electronic classroom linked by microwave to SATNET uplinks, so faculty at each campus can teach courses as part of their normal load and students at each campus can take any course. Project Breakthrough is viewed in West Virginia as providing the opportunity for colleges to highlight outstanding faculty, and faculty identified as outstanding instructors have been invited to teach Project Breakthrough telecourses.

Through Interaction

Learners will be able to interact with instructors outside of class by phone, by fax from any of 75 public libraries in the state, or by electronic mail from any of the 55 county extension sites (three fourths of the potential learners live less than 10 miles from the nearest public library and less than 20 miles from the nearest county extension office). Each learner will be encouraged to register for her/his courses through the nearest higher education institution. An advisor from the off-campus credit office will be assigned and will: coordinate discussions with instructors; ensure the learner becomes connected to the nearest public library where course tapes can be viewed or checked out, books loaned, and materials faxed to instructors; and help the learner become familiar with the local county extension office where he/she can meet in study groups with the county extension office educator and other students taking courses.

Through Orientation

Because some learners will be returning to class after several years' absence, and because learning at a distance may be new to many, Project Breakthrough staff will create a non-degree credit course, Introduction to College/Telecourse Learning. This course will be a refresher in student study skills and will give a complete overview of all aspects of Project Breakthrough. Learners will be able to take this course in every semester.

Contact: R. Rudy Filek, Project Director
304/293-5691

NEW PATHWAYS ASSOCIATES

ALASKA PACIFIC UNIVERSITY and the North Slope Higher Education Center are cooperating to deliver a bachelor's degree in organizational administration to Alaska Native students in eight rural villages through the use of telecommunications.

Contact:
Ilene Risley 907/564-8322

BARTON COUNTY COMMUNITY COLLEGE is part of a Western Kansas consortium working to develop a two-way interactive classroom capability using fiber optic transmission technologies.

Contact:
Sharon Sturgis 316/792-2701

CALIFORNIA STATE UNIVERSITY LOS ANGELES, also known as Bestnet, uses computer conferencing to enable member schools to offer courses to their own, and one another's students. Their network is also being extended to other countries in South America and Africa.

Contact:
Beryl Bellman 213/343-4262

CATONSVILLE COMMUNITY COLLEGE is complementing its telecourses and independent study courses by experimenting with e-mail, videodisc, hypermedia, and a variety of forms of standard and compressed video transmission.

Contact:
John Sneed 301/455-4179

CERRITOS COLLEGE is redesigning transferable general education courses and adding the capability for ordering books and supplies by mail, in order to make it possible for students to have access to all required courses and services off-campus.

Contact:
Jan Dennis-Rounds 213/860-2451

CONNECTICUT STATE UNIVERSITY and four other state colleges and universities will collaborate to design, develop, and deliver the majority of an upper division bachelor's program in Nursing. The courses will initially be delivered via ITFS and, eventually, via the Knowledge Network - a telecommunications network at hospitals throughout the state.

Contact:
Leroy Temple 203/827-7263

EMPIRE STATE COLLEGE's new Center for Learning and Technology is concentrating on increasing student and faculty familiarity with learning technologies; increasing opportunities for student-faculty interaction; increasing peer interaction and increasing student faculty access to learning resources.

Contact:
Carol A. Twigg 518/587-2100

LEAGUE FOR INNOVATION IN THE COMMUNITY COLLEGE proposes a joint initiative of eight leading community colleges to experiment with enhancing existing telecourses in four key curriculum areas. Their long-term goal is to provide an educational program comparable to on-campus programs for meeting the requirements of the first two years of the baccalaureate degree using telecommunications.

Contact:
Paul E. Shumaker 216/987-4787

LEEWARD COMMUNITY COLLEGE is supporting courses at its Waianea satellite campus with a variety of technologies, including cable, microwave video, computer bulletin boards and e-mail. CAI and interactive media are also supported on site.

Contact:
Teresita Hartwell 808/455-0269

LEWIS-CLARK STATE COLLEGE is involving their entire faculty in plans to utilize state-of-the-art technologies to increase both access technologies and telecommunications.

Contact:
Mary Emery 208/799-2460

MICHIGAN STATE UNIVERSITY allows students to participate in a comprehensive demonstration of the capabilities of the Integrated Service Digital Network (ISDN) to deliver instruction in higher education. One aim of the project is to demonstrate how integrated voice and data technologies can provide to distance learners the intimate atmosphere and personalized interaction of the small classroom.

Contact:
Robert J. LaRose 517/355-4528

MISSISSIPPI STATE UNIVERSITY has entered into a fiber optic project, Mississippi 2000, that will deliver courses to seven sites. Working with the Vicksburg Consortium, Mississippi State is also developing a general studies degree program with a concentration in computer science.

Contact:
Robert Leiter 601/325-3473

NATIONAL UNIVERSITIES DEGREE CONSORTIUM consists of nine comprehensive universities, in collaboration with Jones International, Ltd. and Mind Extension University, working toward offering complete degree programs via cable and satellite distance delivery. Each institution will develop courses to be offered by the partnership.

Contact:
Marilyn Gottshall 405/325-2627

NORTHERN STATE UNIVERSITY is working with three Native American community colleges to develop pilot courses that would link the sites via an audiographic system. Northern State is also investigating the baccalaureate degree programs available via an interactive network to students at the community colleges.

Contact:
David Fuller 605/622-2568

OREGON COMMUNITY COLLEGE TELECOMMUNICATIONS CONSORTIUM and its fifteen member colleges offer 12-16 telecourses a year on the Oregon Public Broadcasting Network. The Consortium will work with the Oregon State System of Higher Education's New Pathways Project to use the state's Ed-Net system.

Contact:
Cynthia Leathers 503/747-4501

REGENTS COLLEGE - THE UNIVERSITY OF THE STATE OF NEW YORK plans to make bachelor's degree programs in computer information systems, technical studies and liberal studies, accessible to distance learners. They also plan to develop a model process for distance course design which will include use of video and other course materials, faculty mentors and computer conferencing.

Contact:
Kate Gulliver 518/486-1907

RIO SALADO COMMUNITY COLLEGE has used a variety of delivery systems to offer over thirty courses a semester, including broadcast and cable television, print, audio cassette, audio teleconference, audiographic conference, computer conference, and interactive video.

Contact:
Julie Berch 602/223-4201

SYRACUSE UNIVERSITY offers students an independent external degree program in a variety of fields. Currently, all students are required to reside on campus for brief periods during their degree program. Communication with students during the rest of the year occurs via mail, telephone, fax, and occasionally computer, but additional technologies are being explored.

Contact:
Robert Colley 315/443-4737

TRIDENT TECHNICAL COLLEGE, a comprehensive community college in Charleston, South Carolina, has begun offering a broad range of courses via ITFS to four sites. Their long-range goals include making an entire two year degree curriculum available at a distance, using combinations of technologies.

Contact:
Gary Sattelmeyer 803/572-6284

THE UNIVERSITY OF AKRON is planning to offer basic baccalaureate level university courses to nursing employees at eight teaching hospital sites on an interactive audio/video television network. Other telecommunications, i.e., personal computers, telephones and fax machines will be used for support services.

Contact:
Janne Dunham 216/375-7554

UNIVERSITY OF ARKANSAS AT LITTLE ROCK will develop Project Dante, a four-year liberal arts degree program with a strong business orientation that will make the B.A. degree available to distant learners and to other two-year institutions that participate in the Arkansas Telecommunications Consortium.

Contact:
Lloyd W. Benjamin III 501/569-3296

UNIVERSITY OF COLORADO AT DENVER has recently instituted a new, required core curriculum for undergraduate students. Using an array of technologies currently available on campus, the University is developing core courses for off-campus delivery, creating new distance learning opportunities for the residents of the Denver metropolitan area.

Contact:
Zenas Hartvigson 303/556-3075

UNIVERSITY OF LOUISVILLE's School of Nursing is currently offering video teleconferences to selected high school and hospital sites around the state. The School is planning an RN-BSN Consortium to provide an opportunity for Registered Nurses in rural areas to earn a BSN.

Contact:
Paulette Adams 502/588-8384

THE UNIVERSITY OF MARYLAND UNIVERSITY COLLEGE is expanding its use of interactive technologies to increase communication between faculty and students and to develop new administrative support services. They will also be developing programs to instruct faculty about distance delivery of courses and to evaluate the academic content of distant delivery courses offered.

Contact:
William Wolff 301/985-7722

THE UNIVERSITY OF NEVADA-RENO plans to provide to students located in the isolated, rugged areas of Northern Nevada their first access to a complete bachelor's degree offered locally.

Contact:
Larry Gilbert 702/784-6083

THE UNIVERSITY OF NEW MEXICO (ASIST), working with five Regional Center Cooperatives (RCCs) representing 37 school districts have joined in an effort to provide training at a distance to para- professional staff members in school districts where they aid classroom teachers in providing services to students in special education classrooms.

Contact:
Dianne Bassett: 505/277-1205

UNIVERSITY OF NEW MEXICO's College of Nursing uses satellite to offer video-based nursing coursework in three Western states. The program is focusing on improving faculty skills in teaching over the system.

Contact:
Dianna Shomaker 505/277-5725

UTAH SYSTEM OF HIGHER EDUCATION helps colleges offer courses across the state using a blend of technologies including public broadcasting, cable, ITFS, satellite video, interactive video via microwave, audiographic conferencing; and the Utah-Net statewide library network which supports library services, electronic mail, and Internet access.

Contact:
Cecilia H. Foxley 801/538-5247

VERMONT STATE COLLEGES, a unit that includes five state institutions, offers instruction at five sites using Vermont Interactive Television. VSC is planning to offer a wider range of interactive support services for courses, so that there can be more frequent contact with instructors and other students, improved library access, advising, and access to campus cultural events.

Contact:
Nancy Chard 802/254-6630

WAYNE STATE UNIVERSITY along with Eastern Michigan University, Madonna College, Wayne County Community College, Oakland Community College and Washtenaw Community College will develop a multi-institutional network for course development, delivery and faculty training. The consortium will focus on creating course which are mutually transferrable and lead to Associate's and Bachelor's degrees in Business Administration, and General Studies.

Contact:
David R. Stevenson 313/577-7757

WEST CHESTER UNIVERSITY OF PENNSYLVANIA has a strong program of on-campus technology use, complemented by PC-Anywhere software enabling off-campus users to use their computers to control applications running on big machines on campus. The University has instructional applications.

Contact:

James D. Fabrey 215/436-2390

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THE ANNENBERG/CPB PROJECT

The Annenberg/CPB Project began in 1981 with funding from the Annenberg School of Communications to the Corporation for Public Broadcasting. The goal of the Project is to make a high quality college education more accessible to the American public. To that end, the Project has supported the development of a collection of television and audio courses that are licensed by colleges and universities as complete courses, and used to supplement classroom teaching. The Project has also supported technology demonstration projects that use computers and information technologies to make education more accessible for all students. The New Pathways to a Degree program was launched in 1990.

The Annenberg/CPB Television and Audio Course Collection

Television Courses

Against All Odds: Inside Statistics
Americas (spring 1993)
American Cinema (spring 1994)
Art of Western World
The Constitution: That Delicate Balance
Destinos: An Introduction to Spanish (fall 1992)
Discovering Psychology
Earth Revealed (spring 1992)
Economics U$A
For All Practical Purposes: Contemporary Mathematics
French in Action
The Global Economy (fall 1993)
Growing Old in a New World (fall 1993)
In Simplest Terms: College Algebra
Rural Communities: Legacies and Change (spring 1993)
Literary Visions (fall 1992)
The Mechanical Universe...and Beyond
Out of the Past (spring 1993)
The New Literacy: An Introduction to Computers
The Pacific Century (fall 1992)
Planet Earth
Race to Save the Planet
Seasons of Life
Voices & Visions
War and Peace in the Nuclear Age
The Western Tradition
The World of Abnormal Psychology (fall 1992)
The World of Chemistry
The Write Course

Audio Courses

American History, 1942-1865
American History, 1865-Present
American National Government
Basic Concepts of Music
College Algebra
Dilemmas of War and Peace (fall 1992)
Ethics in Business
Introduction to Modern English and
American Literature: The 19th Century
Introduction to Modern English and
American Literature: The 20th Century
Introduction to Sociology
Introduction to Psychology
Legacies: History of Women and the
Family in America 1607-1870
Marriage and the Family
Nutrition Today
Principles of Statistics

TECHNOLOGY DEMONSTRATION PROJECTS

The Annenberg/CPB Project technology demonstration projects are experiments in using computer and telecommunications technologies to answer questions and solve problems particularly relevant to nontraditional learners and educators. Three of these projects have resulted in products that are, or will soon be, available to colleges and universities.

Perseus

Harvard University has created a multimedia interactive database on Greek civilization. The compact disc and videodisc include Greek texts and English translations, a dictionary of ancient Greek, an atlas, measured drawings, and images of the artifacts and topography of the classical world. Over the next three years, the database will be expanded annually and larger editions of the discs will be produced. Perseus currently runs on Macintosh computers, using the HyperCard program from Apple Computer. Available beginning January 1992 from Yale University Press.

Contact: Perseus Project
Department of the Classics
319 Boylston Hall
Harvard University
Cambridge, MA 02138
perseus@ikaros.harvard.edu
617/495-9025

Audiographic Conferencing: Calculus Course Materials and Authoring Guides

Audiographic conferencing is really two technologies in one: an audio conference enabling many people to have a conversation at a distance over the phonelines, and a visual conference in which the screens of their computers all display the same images. This allows, for example, the faculty member both to show a picture, to point to a part of the image using the computer cursor, and to talk about what is being pointed to. It also allows a student to ask a question in the same way: talking, pointing, drawing, and/or typing at the same time. A team based at Harvard devised an author's guide for developing course materials and a full set of materials for teaching calculus via audiographic conferencing.

Contact: Daniel Goroff
Prof. of Mathematics
Danforth Center for Teaching and Learning
1 Oxford Street, Room 318
Cambridge, MA 02138
617/495-2168
GOROFF@HUMA1.HARVARD.EDU

BioQUEST

Beloit College produced a full-course curriculum of biology computer software with a supporting lab manual. The software allows students to conduct simulated experiments like those commonly performed in standard biology "wet labs." In addition, it gives them access to datasets that let them do statistical analyses. Sixteen moduels cover four major areas of biology: biochemistry/biotechnology, ecology/evolution, genetics and physiology. BioQUEST runs on Macintosh computers. Available beginning June 1992.

Contact: John Jungck
Beloit College
700 College Street
Beloit, WI 53511

The Virtual Classroom: EIES 2

The NJIT has created a virtual classroom (tm) version of its EIES 2 (eyes two) computer conferencing system. Whether at home or at work, and not matter what the hour, students can read lectures, participate in discussions, and send one another graphics, spreadsheets and other computer-based documents, work on projects together, reread a transcript of previous class discussion, vote, receive and submit tests, and take part in virtually any other activitiy the professor wants. A Spanish version of EIES 2 is also available.

Contact: Eileen Michie
Computerized Conferencing Center
New Jersey Institute of Technology
University Heights
Newark, NY 07102
201/596-EIES

Interactive Text Project

The Collegium for Research in Interactive Technologies (CRIT) at the University of San Deigo has created NewBook Editor, an authoring tool that allows you to easily manipulate text and images for building instructional software. Designed primarily for use by instructors in the humanities, NewBook Editor has been used to create a module for teaching critical thinking skills, Warsaw 1939. The reader begins with historical information that can be investigated in greater detail -- word definitions, additional background or images -- using hypertext. Then the reader is asked to make decisions as an individual in the Warsaw ghetto in 1939. In the next level, there is a record of the student's decision and a notebook for marginal notes, queries, or the composition of a developing essay.

Contact: Susan Nickerson
Chariot Software Group
3659 India Street

Suite 100
San Deigo, CA 92103

Salsa: Writing Assistant for Spanish

Salsa comes from Cornell University, and the producers of Systeme-D: Writing Assistant for French. It is a basic word processor with rapid access to language references materials including a Spanish-English dictionary, vocabulary-stretching definitions in Spanish, example sentences with English translations, complete regular and irregular verb conjugations, and concise notes on grammar points, word families, and functional phrases.

Contact: InterLex Associations, Inc.
P.O. Box 252
Ithaca, NY 14851

Annenberg/CPB Project
RESEARCH REPORTS

E001 NEBRASKA VIDEODISC SCIENCE LABORATORY SIMULATIONS

This study explores the potential of computer-controlled videodiscs to provide simulated undergraduate science laboratory instruction in biology, chemistry and physics. (Submitted by Barbara Gross Davis, March 1985)

E002 A STUDY OF TELECOURSE STUDENTS

Responses from about 8,000 students enrolled in 42 television-based courses provide a snapshot of characteristics of television course students. (Submitted by AACJC, June 1984)

E003 RESEARCH ON STUDENT USES OF ANNENBERG/CPB TELECOURSES

Three aspects of television course use are carefully studied: (a) characteristics of students who take television courses; (b) how students use the various components in a television course; and (c) student reactions to and assessment of television courses. First conducted in fall 1984, the study was replicated in fall 1987. (Submitted by Research Communications, Ltd.,
Fall, 1984)

E004 NATIONAL NARROWCAST SERVICE

The Public Broadcasting Service conducted a 15-week demonstration of the National Narrowcast Service (NNS) designed to assess the feasibility of providing a new programming service to colleges, businesses, public agencies, and other organizations that might have adult populations who seek continuing education. (Submitted by the National Narrowcast Service and the Public Broadcasting Service, August 1986)

E005 FACULTY AND ADMINISTRATOR USE OF ANNENBERG/CPB VIDEO COURSES

This study examines several sets of factors that encourage or impede adoption and use of television courses by colleges and universities. (Submitted by the University of Michigan, April 1986)

E007 EVALUATING STUDENT OUTCOMES FROM TELECOURSE INSTRUCTION

The problems of comparing the effectiveness of television-based courses to traditional classroom courses are explored. A new concept of "exchangeability" and new research methodologies are suggested by the findings. (Submitted by Rand Corporation, May 1986)

E008 ADOPTION AND UTILIZATION OF A/CPB TELECOURSES

This survey of college faculty and administrators examines the decision-making process for adopting television-based courses, the ways these courses are used, how television-based courses are perceived compared to regular courses, and factors related to successful use of television-based courses. (Submitted by ELRA Group, Inc., August 1986)

E009 FACULTY PERSPECTIVES ON THE ROLE OF INFORMATION TECHNOLOGY IN ACADEMIC INSTRUCTION

Interviews with almost 200 college faculty provide a look at faculty perceptions of how information technologies can contribute to the solution of important instructional problems. (Submitted by Learning Technology Services, December 1985)

E010 INSTRUCTIONAL TECHNOLOGY IN HIGHER EDUCATION: EDUCATIONAL USES OF TELECOMMUNICATIONS TECHNOLOGY IN AMERICAN COLLEGES AND UNIVERSITIES

This final report of the Higher Education Utilization Study describes nationwide patterns of availability and use of television, audio and computer-based technologies in higher education in the United States. (Submitted by CPB/NCES, May 1986)

E011 TELECOURSE ENHANCEMENT THROUGH ELECTRONIC MAIL

For three semesters, electronic mail was used to support a television-based course offered to distant learners. Learning effectiveness, faculty and student attitudes, and cost are examined. (Submitted by the University of South Florida, February 1987)

E012 STATEWIDE COORDINATION OF EDUCATIONAL TELECOMMUNICATIONS

This state-by-state analysis of how educational telecommunications are organized and administered is based on telephone interviews with leading figures in each state. (Submitted by Hezel Associates, October 1987)

E013 AN EVALUATION OF LEARNING AND ATTITUDINAL CHANGES IN STUDENTS ENROLLED IN ECONOMICS U$A

The two semester course was studied in carefully controlled settings. It was found to be an effective instructional approach for on-campus and off-campus classes. (Submitted by Western Illinois University, November 1987)

E014 STUDENT AND FACULTY ASSESSMENT OF ANNENBERG/CPB TELECOURSES

The study describes the experience of the students and faculty members in taking or teaching Annenberg/CPB telecourses, assesses telecourse components, evaluates responses to telecourses and interest in future telecourse enrollment or teaching. (Submitted by Research Communications, Ltd., July 1988)

E015 INTERMEDIA

A hypertext/hypermedia-based development system (called "Intermedia") for the preparation of computer-based teaching and research materials is assessed. The

report focuses on the strategies and techniques employed by instructors and students in using it in their scholarly routines. (Submitted by William O. Beeman, February 1988)

E016 ASSESSING ELECTRONIC TEXT FOR HIGHER EDUCATION: EVALUATION RESULTS FROM LABORATORY AND FIELD TESTS

The evaluation of electronic text services for higher education focuses on learning effectiveness, attractiveness to students,usage patterns, economic issues, likely adoption patterns by students and colleges and potential barriers. (Submitted by The Electronic Text Consortium, July 1985)

E017 TELECOURSE DESIGN AND NEEDS ASSESSMENT

Institutions which used or might possibly use college-level telecourses responded to this survey soliciting information about telecourse design and content. (Submitted by Sally V. Beatty, September 1988)

E018 SUPPLEMENTAL USES OF ANNENBERG/CPB PROJECT COURSES

Interviews with more than 500 college educators provide an in-depth look at how the Project's video resources are being used to supplement on-campus courses. (Submitted by Research Communications, Ltd., August 1988)

E019 A CRITICAL REVIEW OF THE USE OF AUDIOGRAPHIC CONFERENCING SYSTEMS BY SELECTED EDUCATIONAL INSTITUTIONS

Based on a survey and interviews with 70 persons, this report finds an atmosphere of readiness for an emerging technology known as audiographic conferencing. Compared to other systems for establishing visual and audio interaction, audiographic conferencing appears to be the most cost-effective choice. (Submitted by Kay W. Gilcher and Sally M. Johnstone, The University of Maryland University College, December 1988)

E020 THE TELETEACHING CALCULUS REPORT

This report describes the development, testing, demonstration and evaluation of new methods for teaching introductory calculus as a for-credit course to students at remote sites. (Submitted by Sumner Myers, Jr. of University Tech-Tel (UTT) and the Cambridge Teleteaching Group, June 1988)

E021 DISSEMINATION, UTILIZATION AND ASSESSMENT PROJECT

This study was designed to shed light on the factors which might facilitate or impede more effective and extensive use of audio visual materials in higher education. The study focuses specifically on audio visual materials produced by the Annenberg/CPB Project. (Submitted by the Educational Testing Service, June 1989)

E022 STATEWIDE PLANNING FOR TELECOMMUNICATIONS IN EDUCATION

An update of a similar report completed in 1987, this report describes educational telecommunications (E012) planning in organizations and institutions that

are key to planning in telecommunications activities of a more regional or local nature. In addition, the report looks at policy issues related to statewide or regional planning for technology. (Submitted by Hezel Associates, May 1990)

E024 FACULTY USE OF COURSE DEVELOPMENT RESOURCES

This report assesses how college faculty members develop new courses and how they chose textbooks and other print and non-print materials for their courses. In particular, the study determines the types of resources the faculty members seek out for the development of courses and how they find those resources. (Submitted by Hezel Associates, November 1989)

E025 ENROLLING IN ON-CAMPUS COURSES: TELECOURSE STUDENT'S CONSTRAINTS

This study examined the hypothesis that distance from a campus is the major obstacle that prevents many potential students from pursuing a college degree. In addition, the study assessed student's willingness to use computers for their college telecourses. (Submitted by Hezel Associates, January 1990)

E026 FACULTY PERCEPTIONS OF THE EFFECT OF INTENSIVE COMPUTER USE ON TEACHING AND LEARNING

Departments in two- and four-year colleges were studied to identify types of qualitative curricular improvements being made possible by easy access to computers and other information technologies. (Submitted by Raymond J. Lewis of Learning Technology Services, April 1989)

E027 TELECOURSE UTILIZATION SURVEY: THIRD ANNUAL REPORT (FALL 1986-SUMMER 1989)

For three years, this longitudinal study has tracked trends in enrollments in telecourses at some 200 two-and-four year colleges. (Submitted by Ron Brey, Austin Community College)

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